



Joint Base Lewis-McChord

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JBLM Installation Restoration Program

Meeting with the Regulator's: June 15, 2015



AGENDA

- Welcome/Introductions
- Current Status of IRP
- FFA Sites
 - Sites
 - Logistics Center, Landfill 1, Landfill 4
 - JBLM-McChord – D/ALGT
- Ecology Regulatory Control Sites
 - Sites
 - JBLM-Lewis – FLAO Sites
 - JBLM-McChord – SS-34N, Petroleum and Base Boundary
 - YTC – TVR/FTP Old MATES
 - Non-FLAO Tank Sites



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Current Status of IRP



JBLM IRP Sites

Program	Primary Regulatory Agency
Lewis Main, Lewis North	
■ CERCLA (Superfund)	EPA
■ MMRP	Army
■ RCRA	Ecology
■ UST Program	Ecology
McChord Field	
■ CERCLA (Superfund)	EPA
■ TCP	Ecology

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act

MMRP = Military Munitions Response Program

RCRA = Resource Conservation and Recovery Act

TCP = Toxics Cleanup Program (Ecology)

UST = Underground Storage Tank



Lewis Main, Lewis North CERCLA Sites

Site	Compound of Concern	Media	Phase	FFA?	NPL?
■ Logistics Center	TCE	GW	RA(O)	Yes	Yes
■ PCB Dump Site	PCB	Soil	LTM	Yes	No
■ Landfill 1	TCE	GW	RA(O)	Yes	No
■ Landfill 4	TCE	GW	RA(O)	Yes	No
■ B Range	MEC	Soil	RA(C)	Yes	No

MEC = Munitions and Explosives of Concern

PCB = Polychlorinated Biphenyls

TCE = Trichloroethylene

GW = Groundwater

RA(C) = Remedial Action (Construction)

RA(O) = Remedial Action (Operation)

FFA = Federal Facility Agreement

NPL = National Priority List

LTM = Long-Term Monitoring



Lewis Main, Lewis North Non-CERCLA Sites

Site	Compound of Concern	Media	Phase	Program	Authority
■ Landfill 9	Metals	Soil	CMI(C)	RCRA	AO
■ Miller Hill	Pb	Soil	LTM	RCRA	AO
■ Skeet Range	Pb	Soil	NFA	RCRA	AO
■ AOC 8-2	TPH-D	GW	CMI(O)	UST	AO
■ AOC 8-4	TPH-D	GW	CMI(O)	UST	AO
■ AOC 9-2	TPH-G	GW	CMI(C)	UST	AO
■ AOC 10-8	TPH-D	GW	CMI(O)	UST	AO
■ Non-FLAO USTS	TPH-D	Soil	CAP	UST	MTCA

CMI(C) = Corrective Measures Implementation (Construction)

NFA = No Further Action

Pb = Lead

CAP = Corrective Action Plan

CMI(O) = CMI(Operations)

FLAO = Fort Lewis Agreed Order

TPH-D = Diesel range Total Petroleum Hydrocarbons

TPH-G = Gasoline range TPH

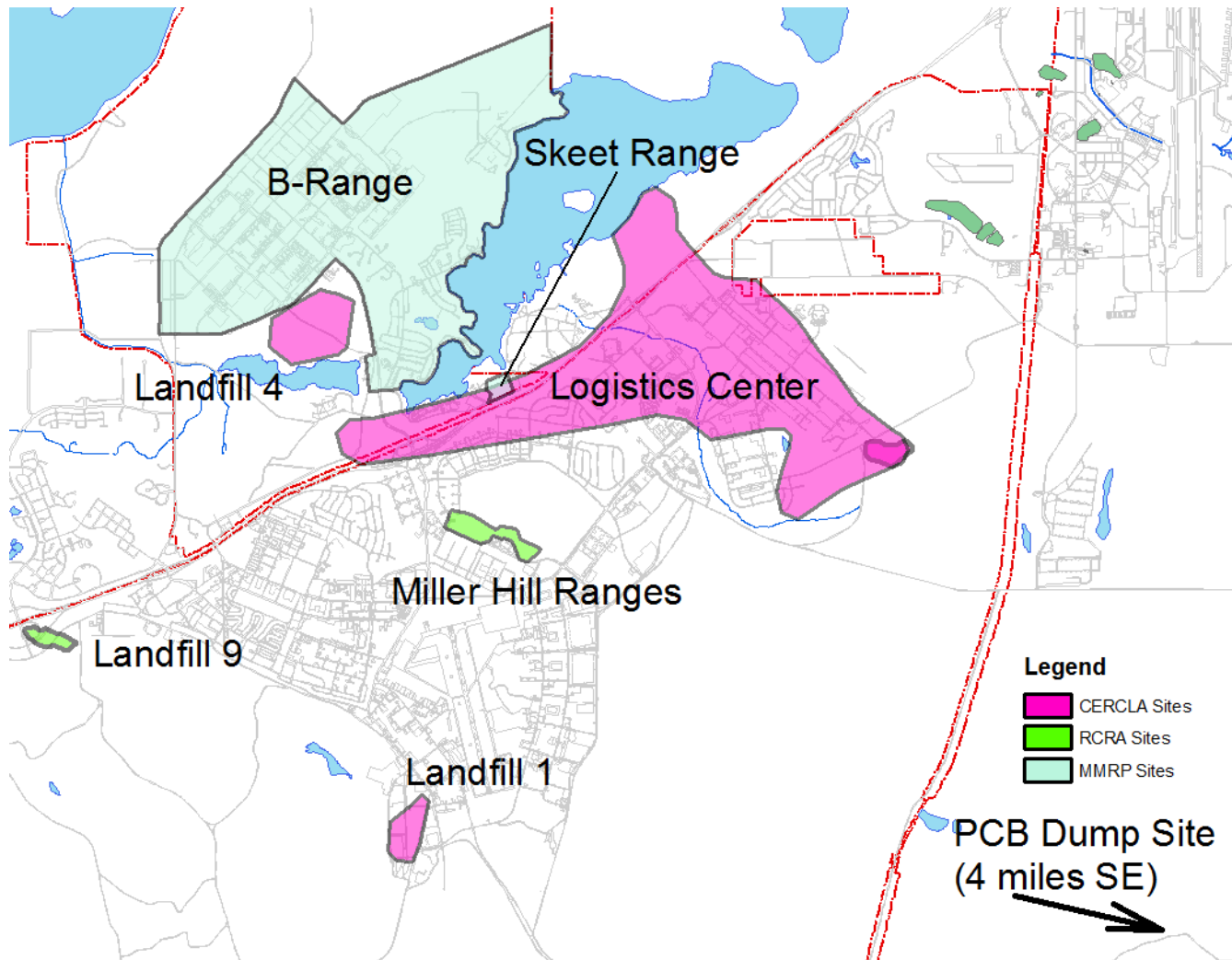
AO = Agreed Order

AOC = Area of Concern (FLAO sites)

MTCA = Models Toxics Control Act

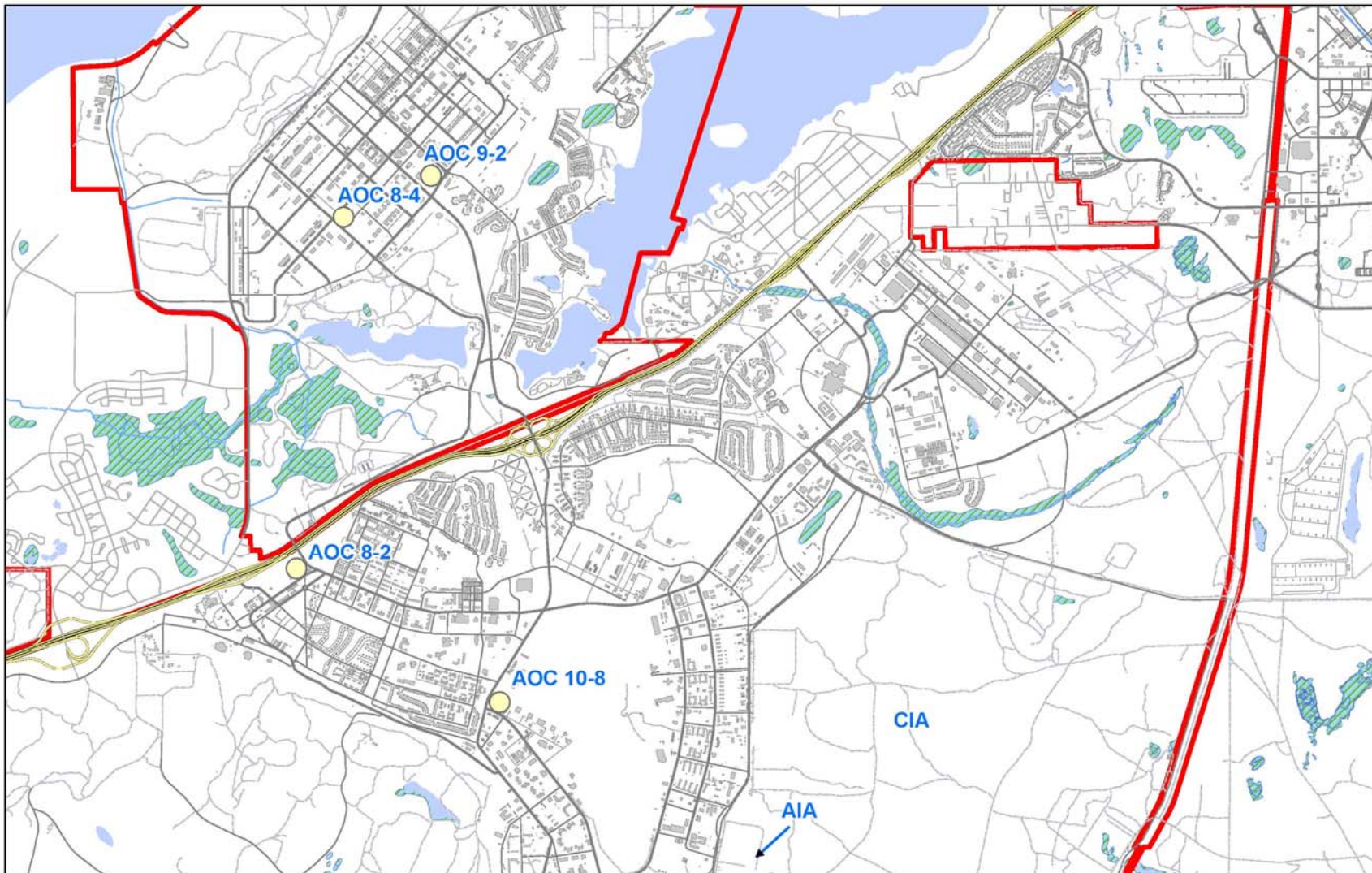


Lewis Main, Lewis North CERCLA, RCRA, MMRP Sites





Lewis Main, Lewis North TCP Sites





Lewis Main, Lewis North COC Concentrations

Site	COC	Beginning Date	Max Conc. $\mu\text{g/L}$	Date	Max Conc. $\mu\text{g/L}$ 2014	Cleanup Level
Log Center	TCE	16 Apr 86	16,000	29 Sep 92	220	5
Landfill 1	TCE	1 Sep 88	24.4	24 May 05	5.8	5
Landfill 4	TCE	1 Sep 05	43	1 Sep 05	9.3	5
	Mn		4,890	1 Sep 05	2,460	2,200
AOC 8-2	TPH-D	11 Apr 05	850,000	29 Dec 05	8,100	500
AOC 8-4	TPH-D	14 Apr 05	12,000	22 Aug 10	1,100	500
AOC 9-2	TPH-G Benzene	1 Aug 95	74,000	18 Nov 11	9,500	800
			2,100	29 Nov 10	46	5
AOC 10-8	TPH-D	1 Jun 93	7,660	14 Sep 09	1,700	500



Active McChord Field Sites

Site	Compound of Concern	Media	Phase	Program	Authority
■ ALGT (Landfill 5)	TCE	GW	RA(O)	CERCLA	FFA/NPL
■ SS-34N	TCE	GW	RA(O)	TCP	CD
■ SS-34	POL	GW	RA(O)	TCP	CD
■ DP-60	POL	GW	RA(O)	TCP	MTCA
■ WP-44	POL	GW	RA(O)	TCP	CD

ALGT = American Lake Garden Tract

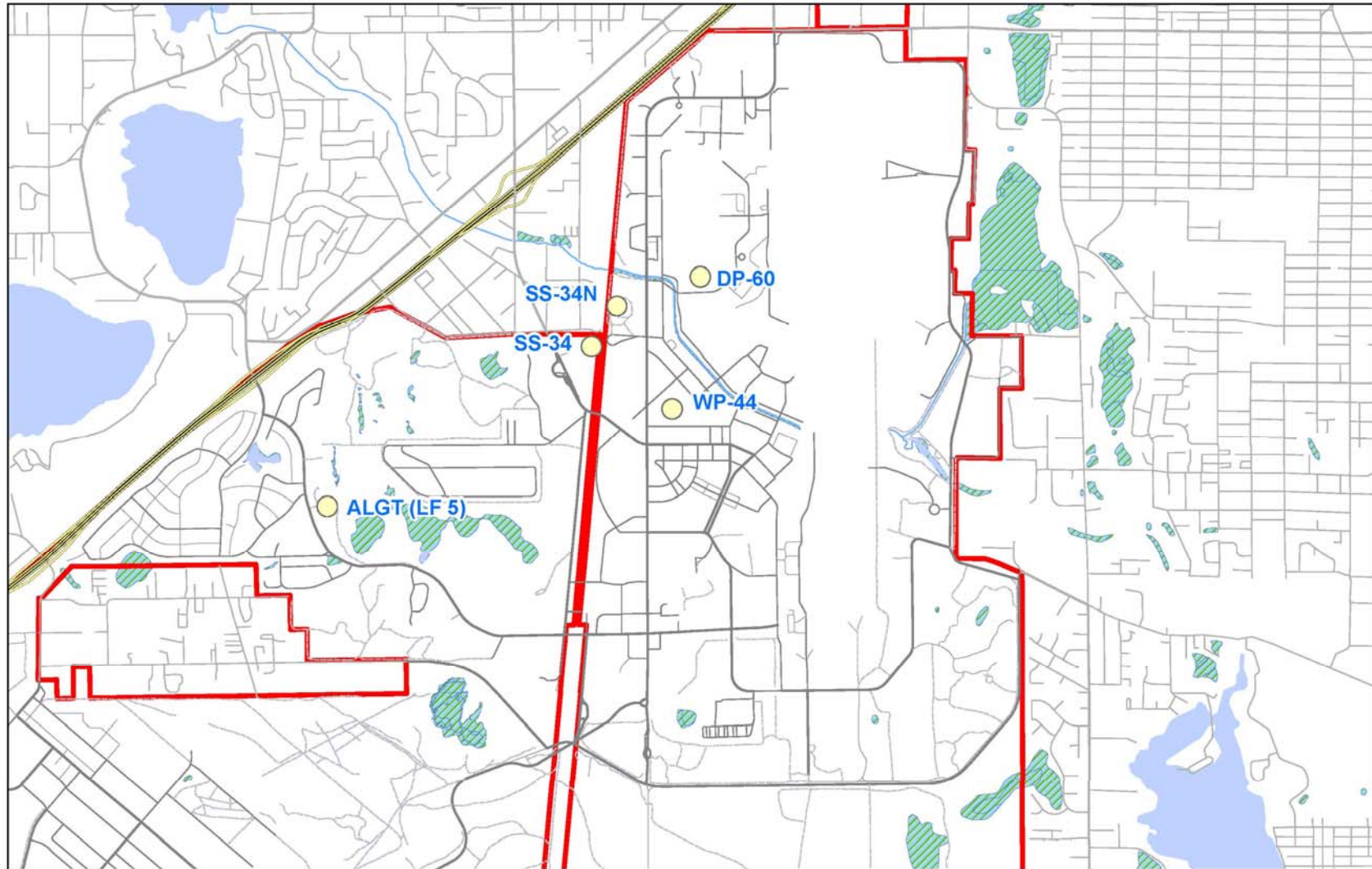
CD = Consent Decree

RA(O) = Remedial Action (Operations)

POL = Petroleum, Oil, Lubricants



McChord Field Sites





McChord Field COC Concentrations

Site	COC	Beginning Date	Max Conc. µg/L	Date	Max Conc. µg/L 2014	Cleanup Level
ALGT	TCE	23 Jan 92	91	17 Mar 00	29	5
	cis 1-2 DCE	23 Jan 92	220	11 Mar 03	24	70
SS-34N	TCE	21 Oct 94	300	15 Sep 00	130	5
SS-34	TPH-G	25 Sep 95	20,000	25 Sep 95	800	1,000
	TPH-D	25 Sep 95	160,000	15 Sep 04	1,400	500
	TPH-O	25 Sep 95	1,400	23 Mar 04	200U	500
DP-60	TPH-D	4 Apr 95	55,000	17 Mar 98	3,100	1,000
	TPH-O	4 Apr 95	1,700	23 Mar 04	1,100	500
WP-44	Benzene	22 Sep 95	70	15 Mar 01	8.6	5
	TPH-G	22 Sep 95	17,000	17 Mar 03	300	1,000
	TPH-D	22 Sep 95	6,800	08 Sep 03	2,800	500
	TPH-O	22 Sep 95	1,500	09 Mar 06	480	500



Lewis Main, Lewis North, McChord Field Investigations

Site	Compound of Concern	Media	Phase	Program
■ Bldg 1168	POL	Soil	CAP	UST
■ Bldg 6031	POL	Soil	CAP	UST
■ Bldg 9001	POL	Soil	CAP	UST
■ 43 Former Tanks	POL	Soil	CAP	UST

50 Monitoring wells that are part of the Log RAM network are scheduled to be decommissioned in 2015.



YTC Sites – Ecology Lead

Site	Compound of Concern	Media	Phase	Program
■ TVR / Old MATES	TCE	GW	CMI(O)	RCRA
■ Bldg 815	Pesticides	Soil	LTM	RCRA
■ ASP Burn Pits	SVOCs	Soil	LTM	RCRA
■ Landfill 1954-1968	SVOCs	Soil	LTM	RCRA
■ FTP	POL	GW	CMI(O)	RCRA
■ Bldg 217 / 218	MEC	Soil	LTM	RCRA
■ Centralized Fueling Pt.	POL	Soil	LTM	RCRA

TVR / Old MATES = Tracked Vehicle Repair / Old Mobilization and Training Equipment Site

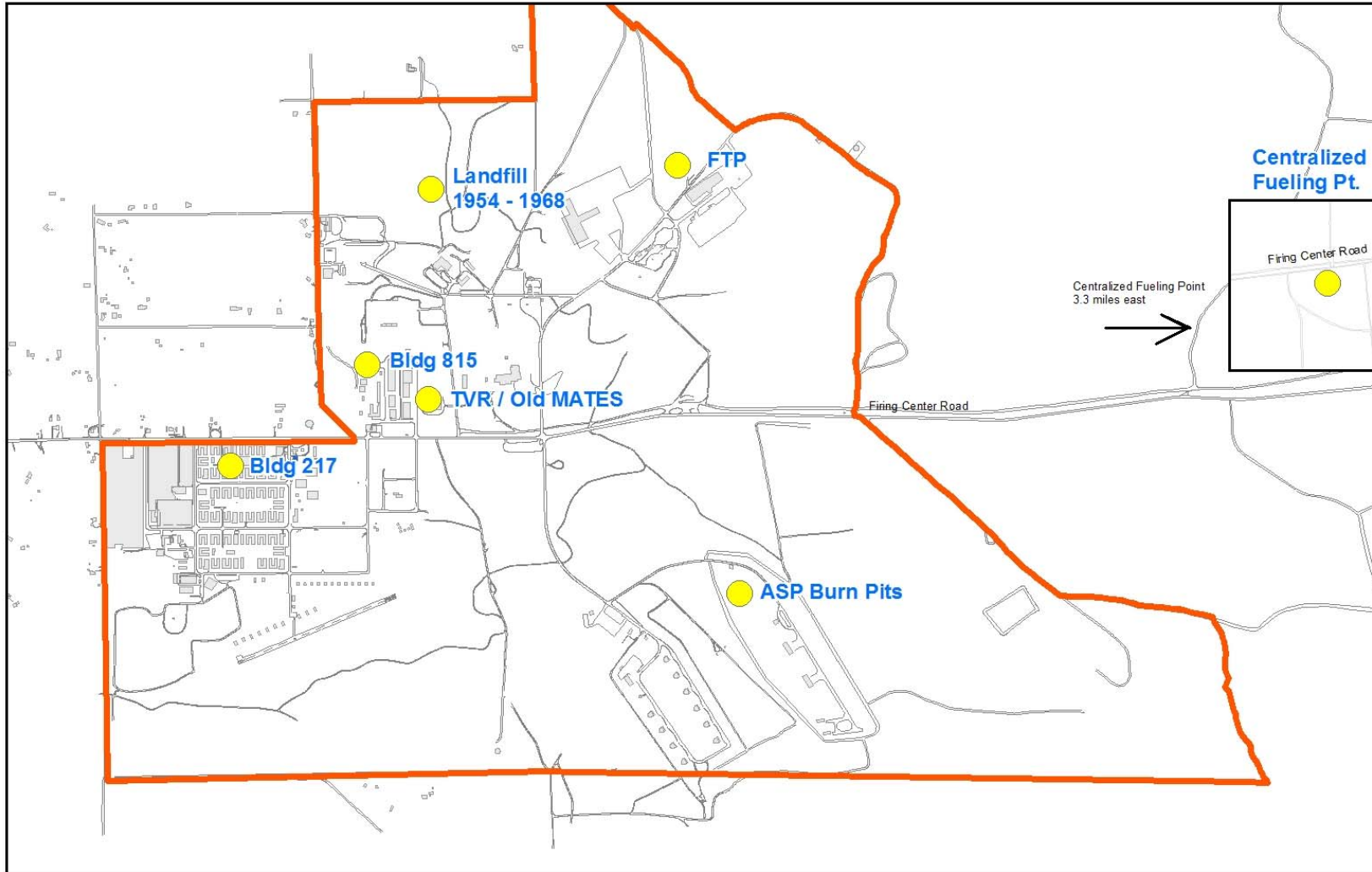
ASP = Ammunition Storage Point

SVOCs = Semi-Volatile Organic Compounds

FTP = Fire Training Pit



YTC Sites





YTC COC Concentrations

Site	COC	Beginning Date	Max Conc. $\mu\text{g/L}$	Date	Max Conc. $\mu\text{g/L}$ 2014	Cleanup Level
TVR / Old MATES	TCE	1 Mar 93	76	1 Aug 06	24	5
FTP	TPH-G	1 Mar 93	25,100	22 Aug 05	2,000	800
	TPH-D	1 Mar 93	2,600,000	1 Mar 93	22,000	500
	TPH-O	1 Mar 93	13,000	20 Aug 12	3,400	500



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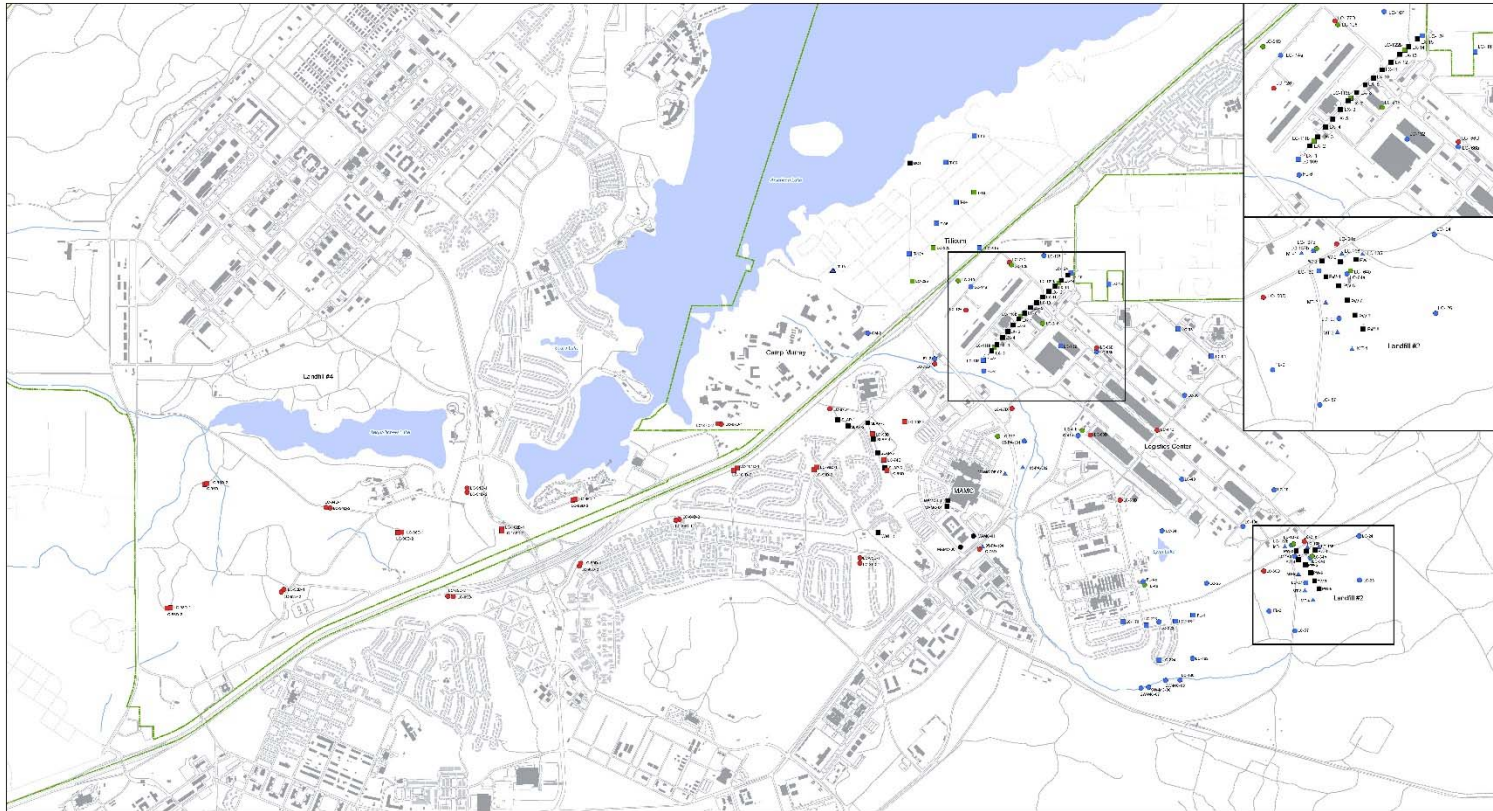


FFA Sites



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JBLM-Lewis: Logistics Center



MWP PRODUCED BY: Tom J. Lynch
01/20/2010 10:51 AM, JBLM, Washington
Printer File: C:\Dwight\Files\Log_Center\Log_SAP2012\Sheet 2.mxd
Print Date: 3/13/2012 10:51 AM
Date Published: March 17, 2012

- Upper Vashon
- Lower Vashon
- Sea Level
- Production Wells
- Sampled Annually
- Sampled Semi-annually
- ◇ Sampled Quarterly
- LX-1 is not running and is not sampled



1 inch = 900 feet
MAP DATA:
ELLIPSOID: GRS 80
COORDINATE SYSTEM: UTM, Zone 10
HORIZONTAL DATUM: WGS 84

EXHIBIT 2
Logistics Center Remedial Action
Monitoring Compliance Plan
WATER QUALITY MONITORING
LOCATION MAP



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JBLM-Lewis: Logistics Center



- FFA Sites
 - JBLM–Lewis
 - Logistics Center
 - Activities and Accomplishments
 - » P&T treatment systems
 - I-5 (14 extraction wells operating)
 - Transducers replacement; level control
 - Other “fixes” for improved operation
 - Landfill 2 (8 extraction wells operating)
 - Replaced operating system with new PLC; added VFD
 - More efficient pump operation; level control at wellhead
 - SLA (6 extraction wells operating)
 - Pump and VFD replacement
 - Completed monthly sampling of treatment systems
 - » GW LTM
 - Completed 2015 semi-annual monitoring in March
 - Worked with EPA to start the optimization of the monitoring program
 - Eliminated non-essential wells; added wells to better define VOC plume



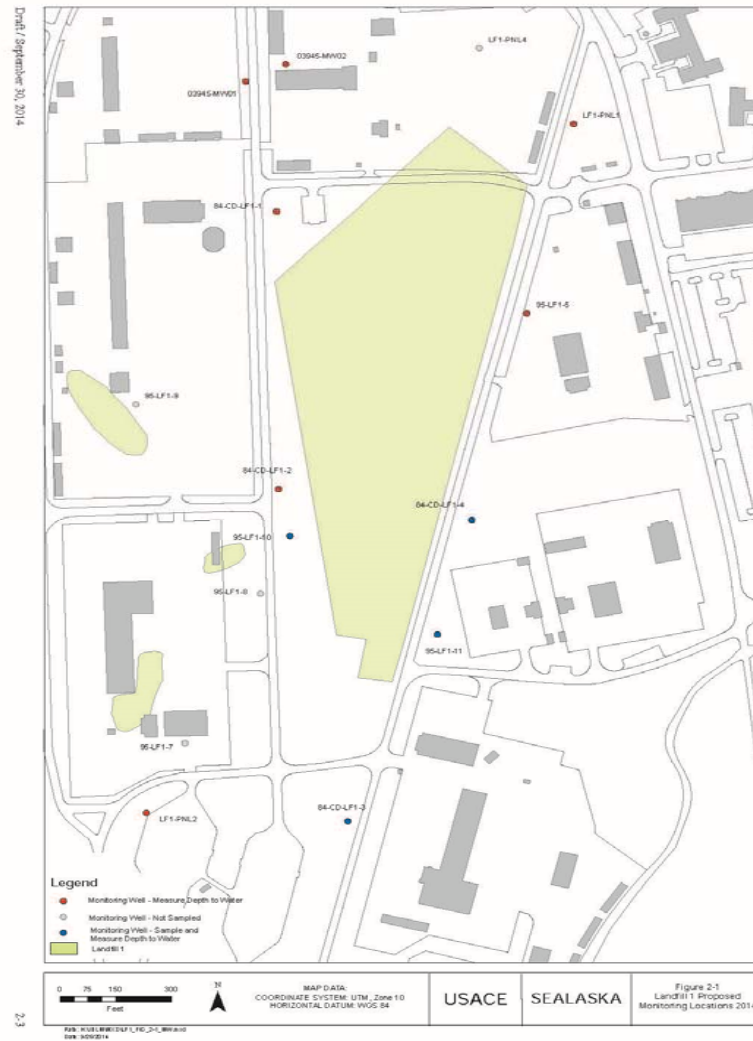
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JBLM-Lewis: Logistics Center



- FFA Sites (cont.)
 - JBLM–Lewis (cont.)
 - Logistics Center (cont.)
 - Proposed Future Activities
 - » Evaluate potential to increase P&T system operation and efficiency
 - » Upgrades to P&T System
 - New operating system at LF2
 - Investigate modernization options
 - » Continue optimization of GW monitoring program
 - Submittals
 - » Compliance Monitoring Plan (June 2015)
 - » Annual Compliance Monitoring Report (June or July 2015)
 - » P&T O&M Manual (July 2015)

JBLM-Lewis: Landfill 1





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JBLM-Lewis: Landfill 1

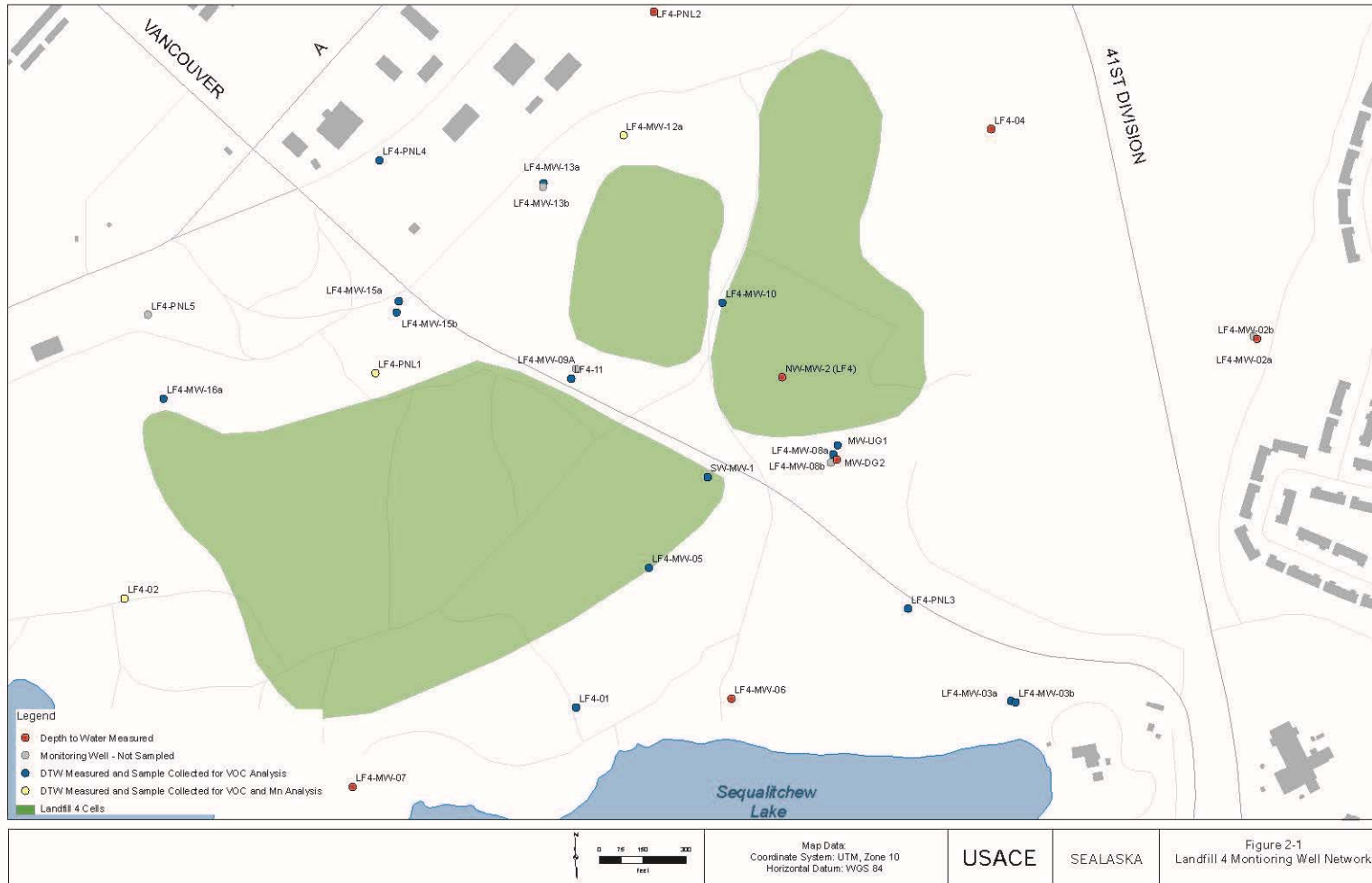


- FFA (cont.)
 - JBLM–Lewis (cont.)
 - Landfill 1
 - Activities and Accomplishments
 - » Completed annual GW monitoring in May
 - » Worked with Army to “uncover” missing monitoring wells.
 - Proposed Future Activities
 - » Continue annual GW monitoring program
 - Submittals
 - » Final Rev 1 2014 GWM Report (approved June 10)
 - » Groundwater Monitoring Plan (June 2015)



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Landfill 4



Path: H:\BURNING\LF4_FC_2-1_MW_LOC.mxd
Date: 9/26/2014

Draft / September 30, 2014

2-3



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JBLM-Lewis: Landfill 4

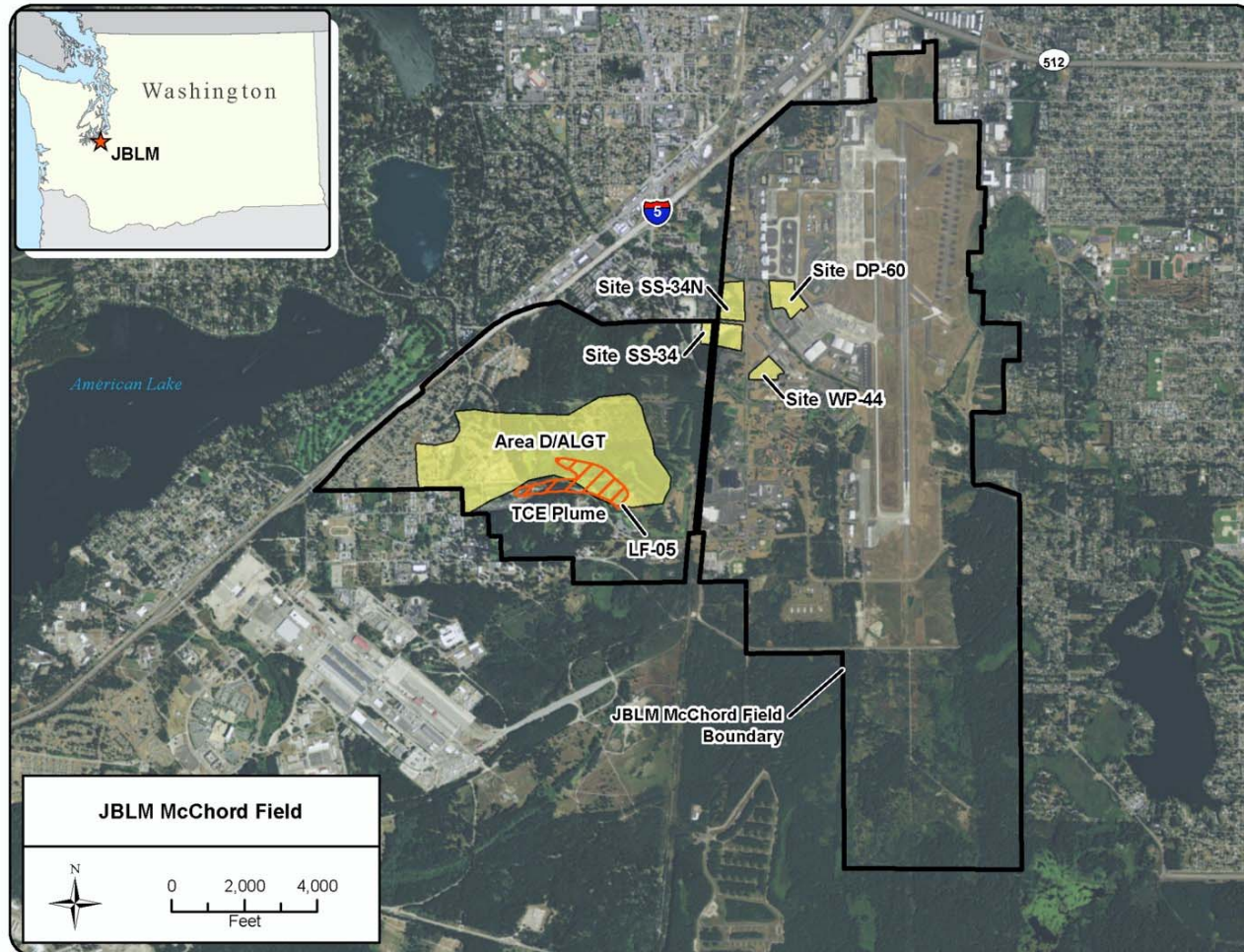


- FFA Sites (cont.)
 - JBLM–Lewis (cont.)
 - Landfill 4
 - Activities and Accomplishments
 - » Completed annual GW monitoring in May
 - » Vegetation control around wellheads
 - Proposed Future Activities
 - » Evaluate possible reductions to GW monitoring program
 - Submittals
 - » 2014 Groundwater Monitoring Report (submitted December 23, 2014)
 - » Groundwater Monitoring Plan (submitted June 8)



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JBLM McChord Field



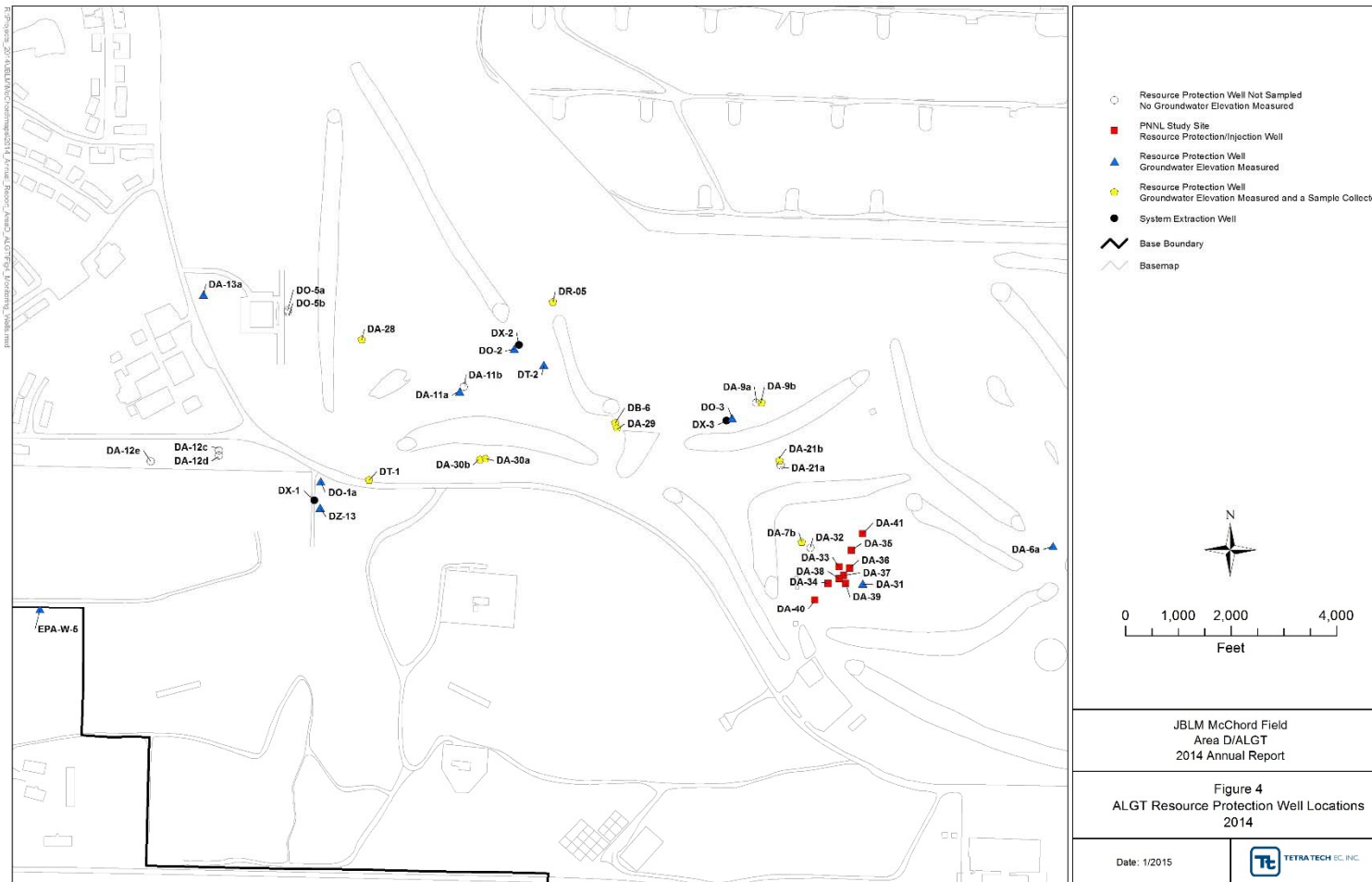


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JBLM McChord Field: ALGT



Area D/ALGT Wells





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JBLM McChord Field: ALGT



- FFA Sites (cont.)
 - JBLM–McChord Field
 - Area D/American Lake Garden Tract (ALGT)
 - Weekly O&M Inspections + Quarterly Sampling at ALGT GPT
 - » Inspections of GPT controls including extraction well flow rates: extraction well static water level elevations; carbon vessel differential pressure; GPT inflow totalizer; and DX-2 and DX-3 maintenance.
 - » Quarterly sampling of DT-1, DX-2, DX-3, GPT effluent, and GPT system monitoring point (SMP) for 4 VOCs.
 - GWM at Site Resource Protection Wells
 - » Wells DA-7b and DA-21b sampled semi-annually for 4 VOCs.
 - » Wells DA-9b, DA-28, DA-29, DA-30a, DA-30b, DB-6, DR-05 sampled annually.
 - » Static water level elevations measured quarterly in all site wells.
 - Current Status
 - » ALGT GPT system operating according to design – well DX-2 pumping ~ 30 gallons per minute; well DX-3 extraction ~80 gpm.
 - » As of March 2015 sampling, no need for carbon change-out (i.e., SMP sample results remain < 5 ug/L TCE)
 - » VOC concentrations in March 2015 consistent with prior years' results.



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JBLM McChord Field: ALGT



- FFA Sites (cont.)
 - JBLM–McChord Field
 - Area D/American Lake Garden Tract (ALGT)
 - Submittals
 - » Quality Project Plan Update (June 2015)
 - » 2014 Groundwater Monitoring Report (June 2015)
 - » ALGT O&M Manual (July 2015)



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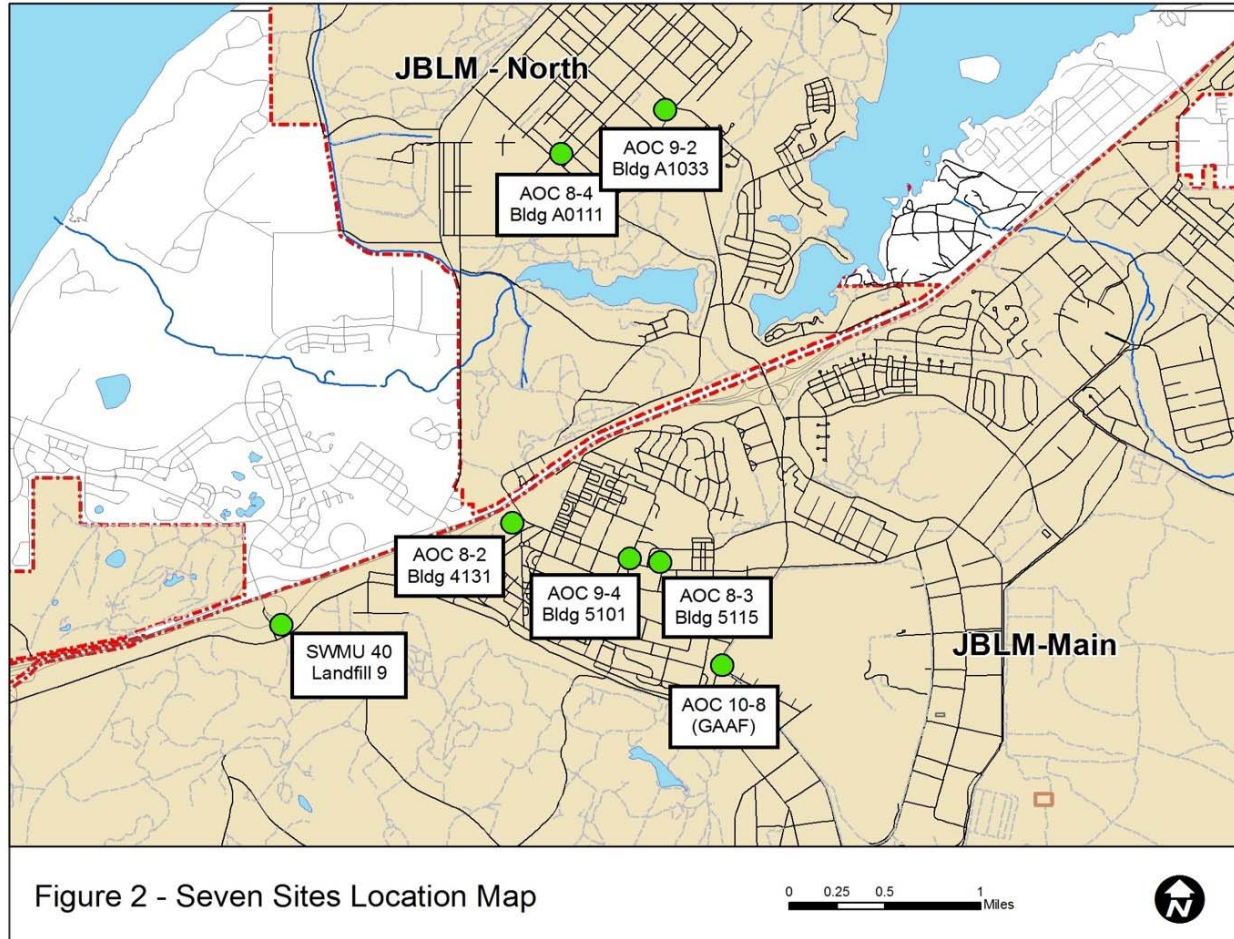


Ecology Regulatory Control Sites



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JBLM-Lewis: FLAO Sites





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JBLM-Lewis: FLAO Sites

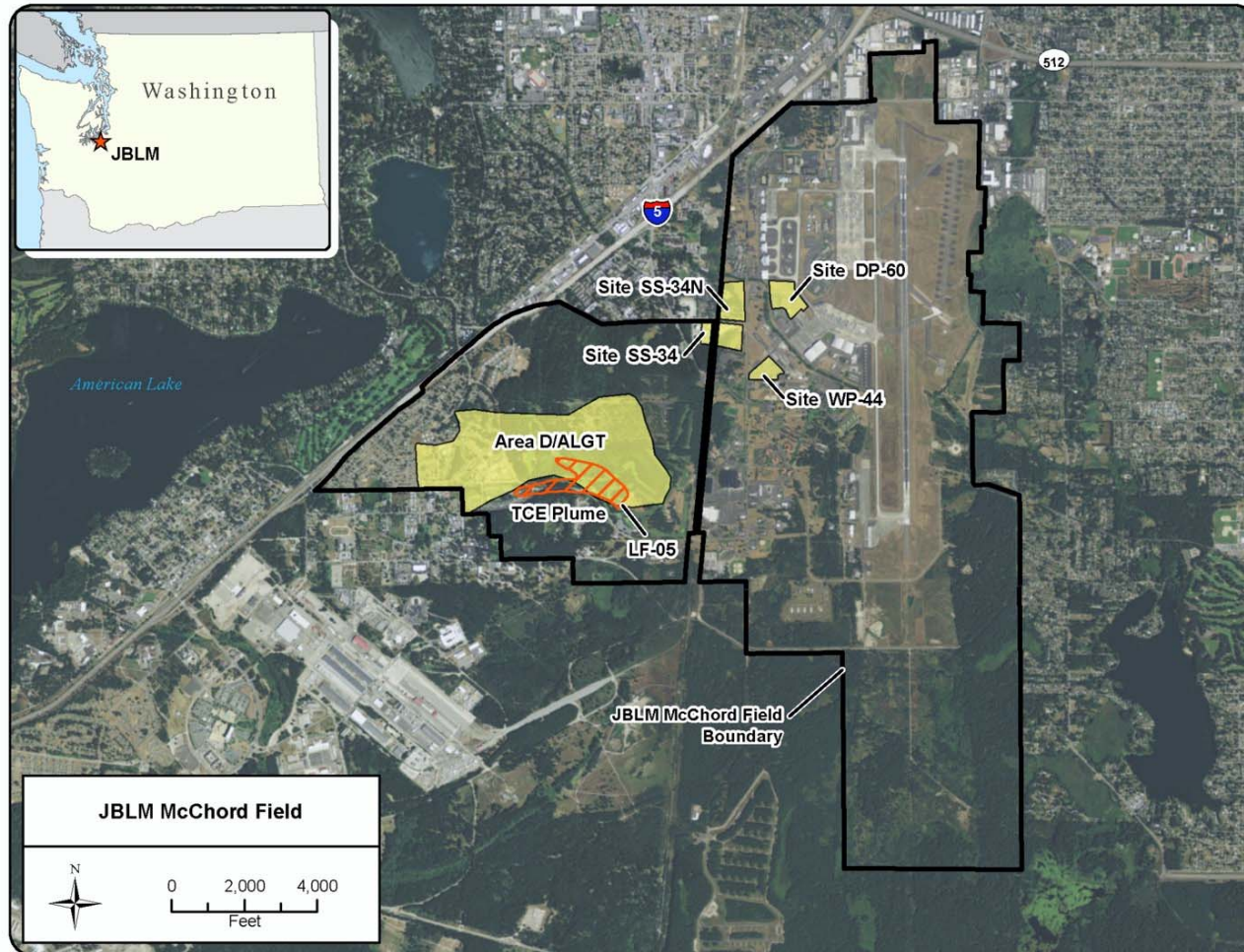


- Ecology Regulatory Control Sites
 - JBLM–Lewis
 - Agreed Order Sites - FLAO Sites
 - Activities and Accomplishments
 - » Completed semi-annual GW monitoring in May
 - » AOC 9-2 AS/SVE treatment system
 - Completed evaluation of impacts to GW table from AS/SVE
 - Limited mounding observed; increased sparge rate
 - Proposed Future Activities
 - » Evaluation of May 2015 data to assess impact of remedial action
 - » Next semi-annual monitoring in September
 - » Evaluate potential to increase AS/SVE system operation and efficiency
 - Submittals
 - » Groundwater Monitoring Plan (submitted April 22)
 - » 2014 Groundwater Monitoring Report (approved May 28)
 - » AS/SVE O&M Manual (submitted May 27)
 - » AS/SVE Annual Report (July 2015)



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JBLM McChord Field



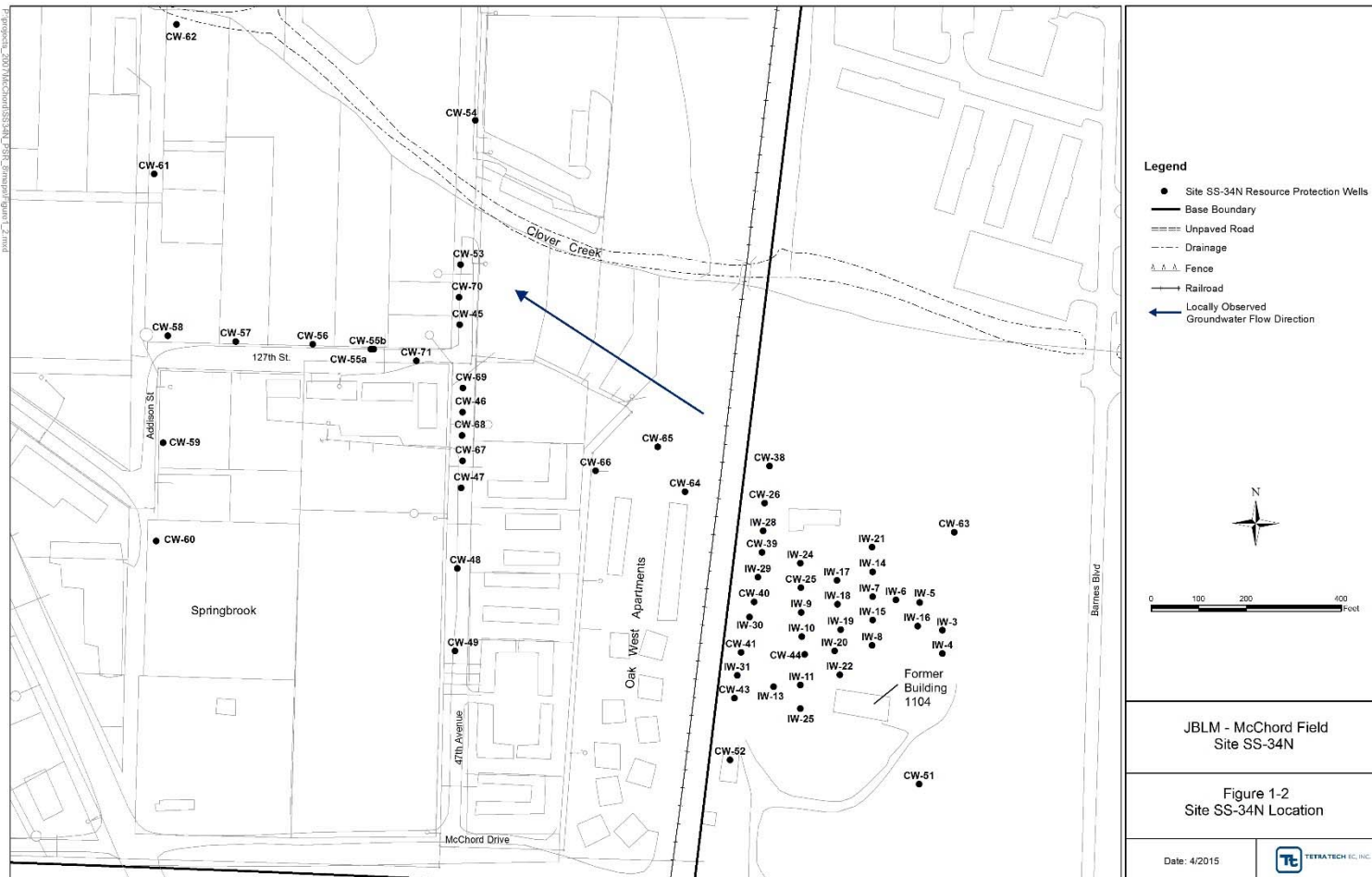


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JBLM McChord Field: SS-34N



Site SS-34N Wells





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JBLM McChord Field: SS-34N



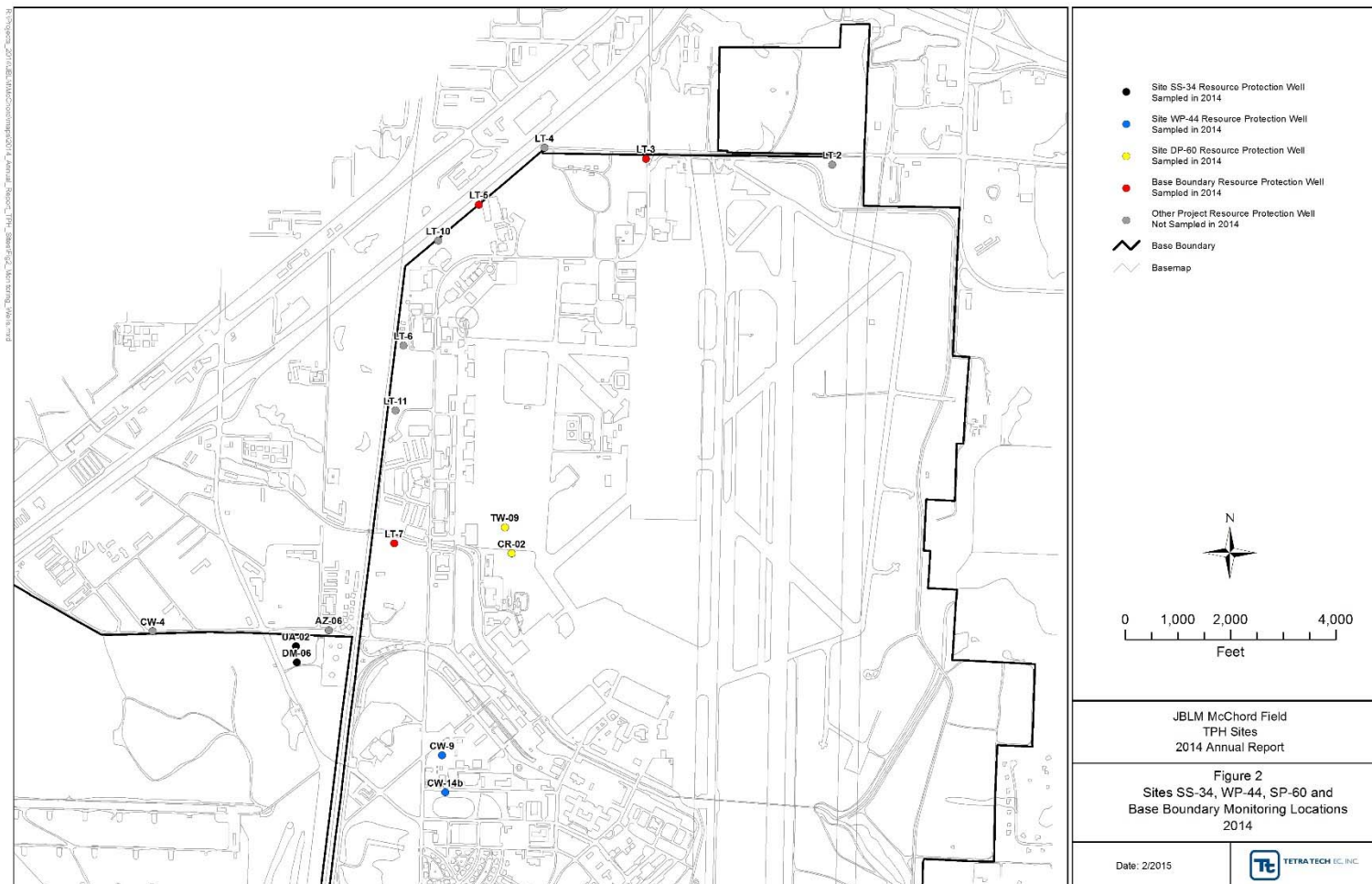
- Ecology Regulatory Control Sites (cont.)
 - JBLM–McChord Field (cont.)
 - Consent Decree Site - SS-34N Site
 - GWM at Site Resource Protection Wells
 - » Springbrook wells (e.g., CW-47) sampled quarterly for VOCs.
 - » Boundary wells (e.g., CW-39) sampled semi-annually for VOCs.
 - » Static water level elevations measured quarterly in all wells.
 - Current Status
 - » March 2015 TCE sample results comparable to 2014 sample results.
 - » Trend analysis shows statistical reduction in TCE concentrations in majority of site wells.
 - » Planning In-situ Chemical Oxidation (ISCO) event during summer 2015 – 160,000 gallons of dilute potassium permanganate solution.
 - Submittals
 - » ISCO Work Plan (approved May 28)
 - » Quality Project Plan Update (June 2015)
 - » 2014 Groundwater Monitoring Report (July 2015)



JBLM McChord Field: Petroleum Sites



- SS-34. WP-44. DP-60 and Base Boundary Wells





JBLM McChord Field: Petroleum Sites

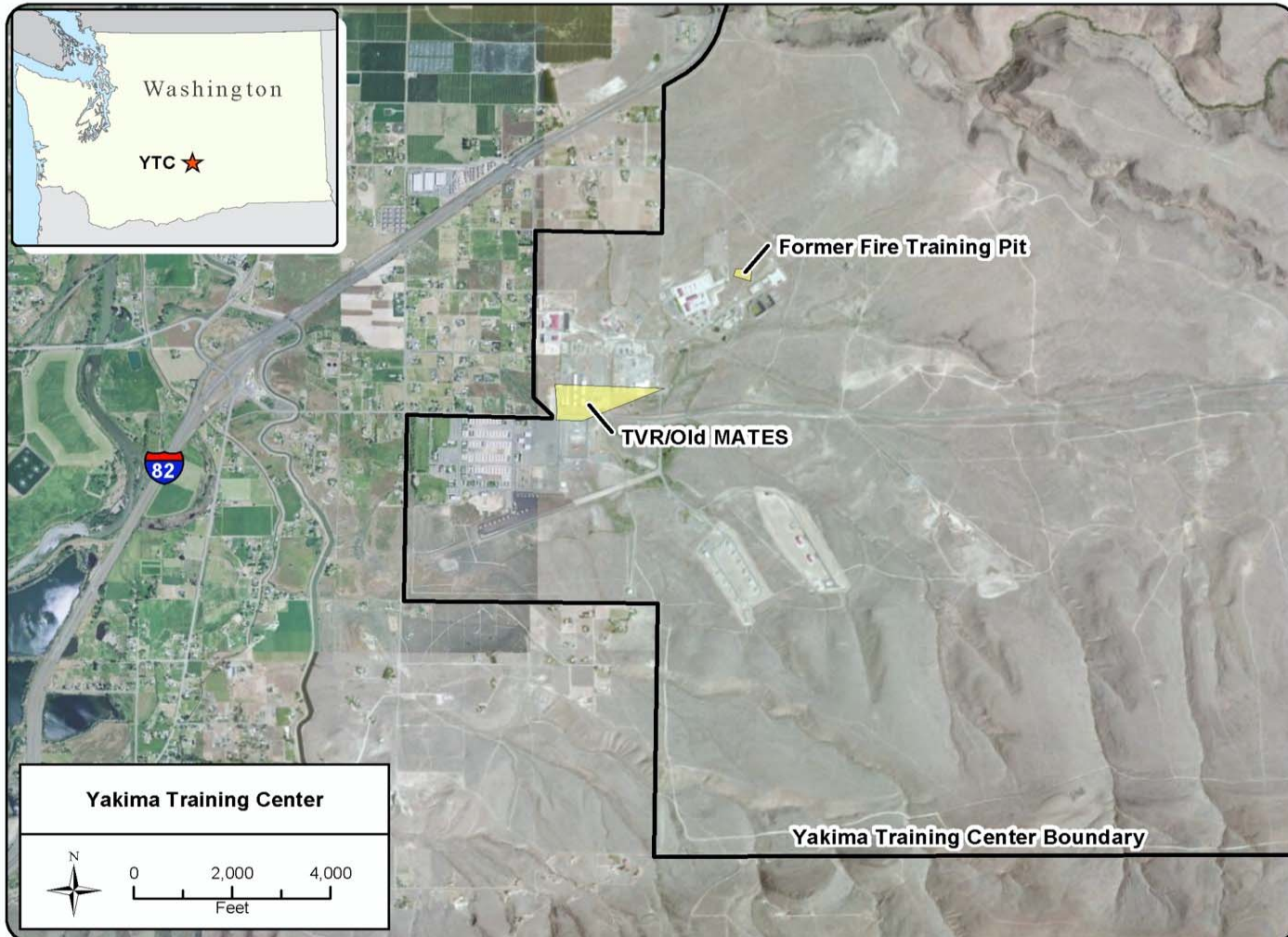


- Ecology Regulatory Control Sites (cont.)
 - JBLM–McChord Field (cont.)
 - SS-34 (CD Site), WP-44 (CD Site), DP-60 (MTCA Site), Base Boundary
 - GWM at Site Resource Protection Wells
 - » SS-34 – 3 wells sampled annually for BTEX and TPH.
 - » WP-44 – 2 wells sampled annually for BTEX and TPH.
 - » DP-60 – 2 wells sampled annually for BTEX and TPH.
 - » Base Boundary – 3 wells sampled annually for VOCs.
 - Current Status
 - » March 2015 results are comparable with prior years' results.
 - Submittals
 - » Quality Project Plan Update (June 2015)
 - » 2014 Groundwater Monitoring Report (July 2015)



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YTC: TVR/FTP Old MATES



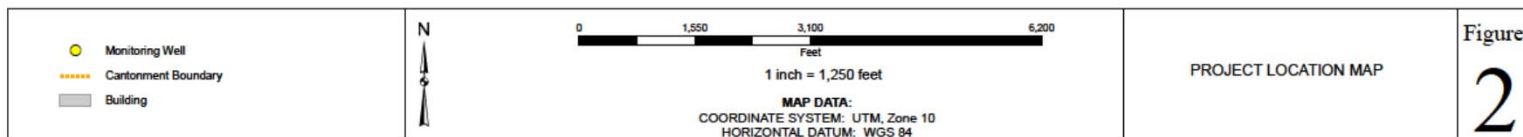
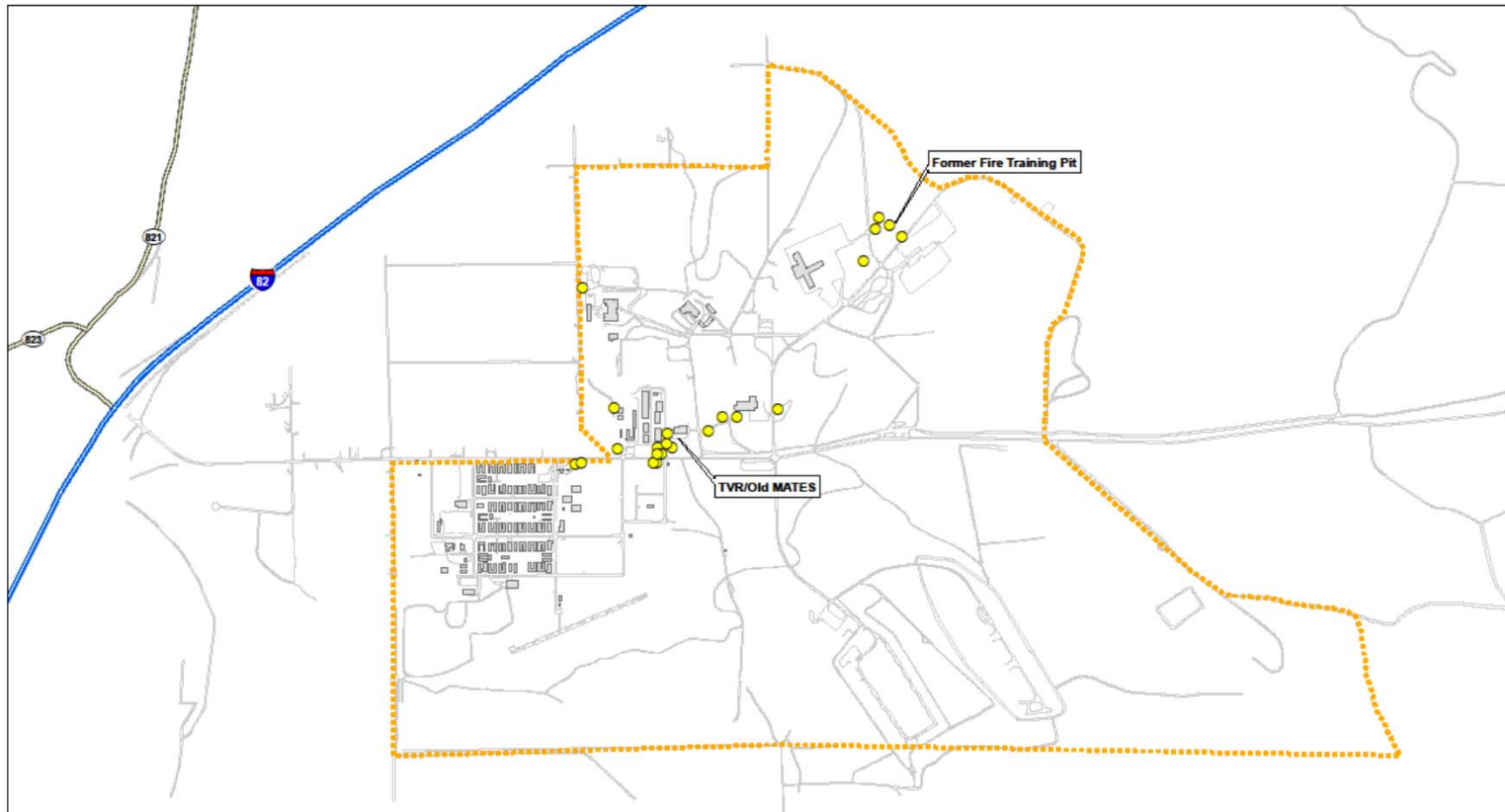


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YTC: TVR/FTP Old MATES



■ FTP/TVR/Old MATES Wells



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YTC: TVR/FTP Old MATES



- Ecology Regulatory Control Sites (cont.)
 - YTC
 - FTP/TVR/Old MATES Sites
 - GWM at Site Resource Protection Wells
 - » FTP – 1 well sampled semi-annually for VOCs, SVOCs, and TPH.
 - » FTP – 3 wells sampled semi-annually for TPH.
 - » TVR/Old MATES – 11 wells sampled semi-annually for VOCs.
 - Current Status
 - » March 2015 sample results are comparable with prior years' results.
 - Submittals
 - » Groundwater Monitoring Plan (submitted May 1)
 - » 2014 Groundwater Monitoring Report (June 2015)



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Non-FLAO Tank Sites



- Ecology Regulatory Control Sites (cont.)
 - MTCA Sites - Non-FLAO Tank Sites
 - Non-FLAO site investigations
 - » Site characterization (43 sites)
 - » Site investigation (1 site)
 - » RI/FS (1 site)
 - » Site investigation/site remediation(?) (1 site)
 - Goal: NFA/LUC for each site
 - Submittals
 - » Building 9001 Remediation Work Plan (approved May 28)
 - » Site Characterization Work Plan (submitted May 27)
 - » Building 1168 Site Investigation Work Plan (submitted June 8)
 - » Building 6031 RI/FS Work Plan (submitted June 12)

